

**IN THE UNITED STATES  
PATENT AND TRADEMARK OFFICE  
BEFORE THE EXAMINING CORPS**

**IN RE APPLICATION OF  
BERNARD DOYLE**

**AND**

**SALLIE MAYNARD**

**FOR A  
SHOWER HEAD FOR SELECTIVELY  
ADDING LIQUID SOAP TO  
SHOWER WATER**

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## **BACKGROUND OF THE INVENTION**

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### **Field of the Invention:**

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The present invention relates to a shower head. More particularly, the present invention relates to a shower head for selectively adding liquid soap to shower water.

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### **Description of the Prior Art:**

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Numerous innovations for a shower head for selectively adding liquid soap to shower water have been provided in the prior art that will be described. Even though these innovations may be suitable for the specific individual purposes to which they address, however, they differ from the present invention.

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**FOR EXAMPLE**, U.S. Patent Number 3,764,074 to James teaches a shower head and liquid agent dispensing attachment that includes valving apparatus which interconnects a source of pressurized liquid and spray dispenser having single control positionable from one extreme, at which just the pressurized liquid is provided, to another extreme at which a mixture of the first liquid and liquid agent are provided, the liquid agent container also being interconnected with the valving apparatus.

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**ANOTHER EXAMPLE**, U.S. Patent Number 4,121,773 to Headen teaches a shower head dispenser for bath oil and the like which includes a body member with an axial bore adapted for insertion between a shower line and a shower head. The body member has two longitudinally spaced apertures in its side wall which

1     communicate between the bore and a detachable oil container. A plug is rotatably  
2     mounted in the bore of the body. It has an axial venturi bore therethrough, and a pair  
3     of transverse bores, one of which intercepts the axial bore at the venturi throat, and  
4     the other of which intercepts the axial bore upstream of the throat. The transverse  
5     bores of the plug are registrable with the apertures of the body upon rotation of the  
6     plug. When water passes through the venturi bore of the plug with the transverse  
7     bores aligned with the apertures, the greater pressure at the upstream bore and  
8     aperture forces oil out of the container through the downstream bore and aperture  
9     into the venturi throat, where it mixes with water enroute to the shower head.

10           **STILL ANOTHER EXAMPLE**, U.S. Patent Number 4,193,520 to Duffield  
11     teaches a device for adding liquid soap to shower water. Liquid soap is drawn  
12     through a tube member by harnessing the negative pressure in a sleeve member,  
13     situated within a water source leading to a shower nozzle, relative to the atmosphere.  
14     Means for controlling the volume of soap flowing through a tube member adjusts the  
15     amount of soap going through the shower head.

16           **YET ANOTHER EXAMPLE**, U.S. Patent Number 4,651,930 to Magaha, Jr.  
17     teaches a shower head attachment that has a liquid detergent reservoir and  
18     facilitates a "soap," "rinse," and "off" cycle. The attachment has a body provided with  
19     a rotary valve having a transverse port. The port is alined, selectively, with a first or  
20     second longitudinal inclined passageway formed in the body forwardly of the valve.  
21     A third passageway of critical internal diameter communicates the first passageway  
22     with an opening formed in a depending neck on the body and acts as an aspirating  
23     passageway. A sleeve is secured within the opening and carries a depending feed

1 tube. The feed tube extends into a reservoir or bottle of liquid detergent that is  
2 removably mounted on the depending neck of the body, externally of the sleeve. The  
3 sleeve has a valve seat above the feed tube, and a ball check valve is seated on the  
4 valve seat. The valve carries an external handle; and the ends of the handle carry  
5 depending cables, the ends of which are provided with respective tabs. A pin on the  
6 body is received in an arcuate slot in the handle to limit the rotary movement of the  
7 handle and valve. The liquid detergent is biodegradable and cooperates with the  
8 aspirating passageway to prevent clogging. It is critical that the liquid detergent has  
9 the proper viscosity relative to the internal diameter of the aspirating passageway so  
10 that the detergent is aspirated out of the bottle and into the shower head attachment  
11 at the desired rate.

12 **STILL YET ANOTHER EXAMPLE**, U.S. Patent Number 5,071,070 to Hardy  
13 teaches an apparatus to selectively introduce a fluid from one of a plurality of  
14 containers into a stream of water flowing through a shower head. The apparatus  
15 comprises a housing, a main water passageway therethrough, a plurality of bottles  
16 containing fluid to be fed therefrom, supplemental passageways coupling the bottles  
17 and the main water passageway whereby fluid from the container may flow to the  
18 main passageway by venturi forces created by flowing water, a valve mechanism  
19 means movable between open and closed positions by the venturi forces to allow or  
20 preclude the feeding of fluid to the flow of water, and user controlled means to  
21 selectively allow the valve mechanism to be coupled with the venturi force. Also  
22 disclosed is the method for selectively introducing a fluid from a container into a  
23 stream of water flowing through a shower head by venturi forces of the flowing water.

1           **YET STILL ANOTHER EXAMPLE**, U.S. Patent Number 5,356,076 to Bishop  
2 teaches a soap dispenser for use with liquid soaps, primarily in showers, that has a  
3 unique multi-position valve, and separate mixing and air entraining controls. Liquid  
4 soap stored in a reservoir is drawn into a flowing water stream by siphonic action.  
5 The amount of soap/air mixture is regulated by a mixture valve. Air in controllable  
6 proportions is added by an air entrainment valve. The proportion of air with respect  
7 to the soap is adjustable. Simultaneous control of the amount of soap/air mixed with  
8 the flowing water stream is controlled by a unique mixture valve geometry.

9           It is apparent that numerous innovations for a shower head for selectively  
10 adding liquid soap to shower water have been provided in the prior art that are  
11 adapted to be used. Furthermore, even though these innovations may be suitable  
12 for the specific individual purposes to which they address, however, they would not  
13 be suitable for the purposes of the present invention as heretofore described.

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## **SUMMARY OF THE INVENTION**

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**ACCORDINGLY, AN OBJECT** of the present invention is to provide a shower head for selectively adding liquid soap to shower water that avoids the disadvantages of the prior art.

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**ANOTHER OBJECT** of the present invention is to provide a shower head for selectively adding liquid soap to shower water that is simple to use.

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**BRIEFLY STATED, STILL ANOTHER OBJECT** of the present invention is to provide a shower head for selectively adding liquid soap to shower water. A partition contained in the nozzle defines first and second chambers contained in the nozzle. A reservoir contained in the nozzle holds the liquid soap therein and fluidly communicates with the second chamber. An apparatus contained in the nozzle selectively directs water from a water source into either the first chamber where it exists the nozzle as the shower water or into the second chamber where by creating a negative pressure due to its flow draws down the liquid soap from the reservoir to mix therewith and exit the nozzle as soapy shower water.

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The novel features which are considered characteristic of the present invention are set forth in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of the specific embodiments when read and understood in connection with the accompanying drawing.

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## **BRIEF DESCRIPTION OF THE DRAWINGS**

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The figures of the drawings are briefly described as follows:

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**FIGURE 1** is a diagrammatic perspective view of the shower head of the present invention;

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**FIGURE 2** is a diagrammatic cross sectional view taken along **LINE 2-2** in **FIGURE 1** of the shower head of the present invention in the shower water only mode; and

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**FIGURE 3** is a diagrammatic cross sectional view taken along **LINE 3-3** in **FIGURE 1** of the shower head of the present invention in the combined shower water and liquid soap mode.

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1            **LIST OF REFERENCE NUMERALS UTILIZED IN THE DRAWINGS**

- 2    **10**    shower head of present invention for selectively adding liquid soap **12** to  
3           shower water **14**  
4    **12**    liquid soap  
5    **14**    shower water  
6    **16**    nozzle  
7    **18**    reservoir contained in nozzle **16** for holding liquid soap **12**  
8    **20**    partition contained in nozzle **16**  
9    **22**    apparatus contained in nozzle **16** for selectively directing water **28** from water  
10           source **30** into either first chamber **24** contained in nozzle **18** where it exists  
11           nozzle **16** as shower water **14** or into second chamber **26** contained in nozzle  
12           **16** where by creating negative pressure due to its flow draws down liquid soap  
13           **12** from reservoir **18** contained in nozzle **16** to mix therewith and exit nozzle  
14           **16** as soapy shower water **32**  
15    **24**    first chamber contained in nozzle **16**  
16    **26**    second chamber contained in nozzle **16**  
17    **28**    water from water source **30**  
18    **30**    water source  
19    **32**    soapy shower water  
20    **34**    forwardmost wall of nozzle **16**  
21    **36**    uppermost wall of nozzle **16**  
22    **38**    rearwardmost wall of nozzle **16**



- 1    **40**    outlet of nozzle **16**
- 2    **42**    floor defining reservoir **18** contained in nozzle **16**
- 3    **43**    plug of reservoir **18** contained in nozzle **16** for allowing reservoir **18** contained
- 4        in nozzle **16** to be filled with liquid soap **12**
- 5    **44**    perforations in floor **42** defining reservoir **18** contained in nozzle **16** for
- 6        allowing liquid soap **12** to leave reservoir **18** contained in nozzle **16** and enter
- 7        second chamber **26** contained in nozzle **16**
- 8    **46**    soapy shower water
- 9    **48**    conduit contained in nozzle **16**
- 10   **50**    terminal end of floor **42** defining reservoir **18** contained in nozzle **16**
- 11   **52**    door of apparatus **22**
- 12   **54**    pivot pin of door **52** of apparatus **22**
- 13   **56**    terminal end of pivot pin **54** of apparatus **22**
- 14   **58**    knob of apparatus **22**
- 15   **60**    handle

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## **DETAILED DESCRIPTION OF THE INVENTION**

2 Referring now to the figures, in which like numerals indicate like parts, and  
3 particularly to **FIGURE 1**, which is a diagrammatic perspective view of the shower  
4 head of the present invention, the shower head of the present invention is shown  
5 generally at **10** for selectively adding liquid soap **12** to shower water **14**.

6 The configuration of the shower head **10** can best be seen in **FIGURE 2** and  
7 in **FIGURE 3**, which are, respectively, a diagrammatic cross sectional view taken  
8 along **LINE 2-2** in **FIGURE 1** of the shower head of the present invention in the  
9 shower water only mode, and a diagrammatic cross sectional view taken along **LINE**  
10 **3-3** in **FIGURE 1** of the shower head of the present invention in the combined shower  
11 water and liquid soap mode, and as such, will be discussed with reference thereto.

12 The shower head **10** comprises a nozzle **16**, a reservoir **18**, a partition **20**, and  
13 an apparatus **22**. The partition **20** is contained in the nozzle **16** and defines a first  
14 chamber **24** and a second chamber **26** in the nozzle **16**. The reservoir **18** is  
15 contained in the nozzle **16**, is for holding the liquid soap **12** therein, and fluidly  
16 communicates with the second chamber **26** contained in the nozzle **16**. The  
17 apparatus **20** is contained in the nozzle **16** and is for selectively directing water **28**  
18 from a water source **30** into either the first chamber **24** contained in the nozzle **18**  
19 where it exists the nozzle **16** as the shower water **14** (**FIG. 2**) or into the second  
20 chamber **26** contained in the nozzle **16** where by creating negative pressure due to  
21 its flow draws down the liquid soap **12** from the reservoir **18** contained in the nozzle  
22 **16** to mix therewith and exit the nozzle **16** as soapy shower water **32** (**FIG. 3**).

1           The nozzle **16** has a forwardmost wall **34**, an uppermost wall **36**, a  
2   rearwardmost wall **38**, and an outlet **40**.

3           The reservoir **18** contained in the nozzle **16** is defined by a floor **42**. The floor  
4   **42** defining the reservoir **18** contained in the nozzle **16** extends rearwardly and  
5   upwardly from the forwardmost wall **34** of the nozzle **16** to the uppermost wall **36** of  
6   the nozzle **16**.

7           The reservoir **18** contained in the nozzle **16** has a plug **43**. The plug **43** of the  
8   reservoir **18** contained in the nozzle **16** is disposed at the forwardmost wall **34** of the  
9   nozzle **16**, and when removed is for allowing the reservoir **18** contained in the nozzle  
10   **16** to be filled with the liquid soap **12**.

11          The floor **42** defining the reservoir **18** contained in the nozzle **16** has  
12   perforations **44**. The perforations **44** in the floor **42** defining the reservoir **18**  
13   contained in the nozzle **16** allow the reservoir **18** contained in the nozzle **16** to fluidly  
14   communicate with the second chamber **26** contained in the nozzle **16** and for  
15   allowing the liquid soap **12** to leave the reservoir **18** contained in the nozzle **16**, enter  
16   the second chamber **26** contained in the nozzle **16**, mix with the water **28** of the  
17   water source **30**, and exit the nozzle **16** as the soapy shower water **32** when the  
18   water **28** of the water source **30** is directed by the apparatus **22** into the second  
19   chamber **26** contained in the nozzle **16** and creates the negative pressure due to its  
20   flow that draws down the liquid soap **12** from the reservoir **18** contained in the nozzle  
21   **16** into the second chamber **26** contained in the nozzle **16**.

1           The partition **20** contained in the nozzle **16** extends upwardly from  
2   engagement with the outlet **40** of the nozzle **16** to below the floor **42** defining the  
3   reservoir **18** contained in the nozzle **16** so as to form a conduit **48** therebetween, and  
4   then extends rearwardly therefrom still below the floor **42** defining the reservoir **18**  
5   contained in the nozzle **16** to between the uppermost wall **36** of the nozzle **16** and the  
6   rearwardmost wall **38** of the nozzle **16** where it terminates in a terminal end **50**.

7           The apparatus **22** comprises a door **52**. The door **52** of the apparatus **22** is  
8   pivotally attached by a pivot pin **54** to the terminal end **50** of the partition **20**  
9   contained in the nozzle **16**.

10          The door **52** of the apparatus **22** sweeps from a first position of engagement  
11   with the uppermost wall **36** of the nozzle **16** where it closes the conduit **48** contained  
12   in the nozzle **16** preventing the water **28** from the water source **30** from entering the  
13   second chamber **26** contained in the nozzle **16** and mixing with the liquid soap **12**  
14   while simultaneously opening communication of the water **28** from the water source  
15   **30** with the first chamber **24** contained in the nozzle **16** so as to allow only the shower  
16   water **14** to exit the outlet **40** of the nozzle **16** (**FIG. 2**), to a second position of  
17   engagement with the rearwardmost wall **38** of the nozzle **16** where it closes  
18   communication of the water **28** from the water source **30** with the first chamber **24**  
19   contained in the nozzle **16** while simultaneously opening the conduit **48** contained in  
20   the nozzle **16** allowing the water **28** from the water source **30** to enter the second  
21   chamber **26** contained in the nozzle **16** and mix with the liquid soap **12** by creating  
22   the negative pressure that draws down the liquid soap **12** from the reservoir **18**

1 contained in the nozzle **16** thereinto so as to allow only the soapy shower water **32** to  
2 exit the outlet **40** of the nozzle **16** (**FIG. 3**).

3 The pivot pin **54** of the apparatus **22** extends through the nozzle **16** to a  
4 terminal end **56** (**FIG. 1**).

5 The apparatus **22** further comprises a knob **58** (**FIG. 1**). The knob **58** of the  
6 apparatus **22** engages, and rotates with, the terminal end **56** of the pivot pin **54** of the  
7 apparatus **22** so as to selectively move the door **52** of the apparatus **22** between its  
8 first and second positions.

9 The shower head **10** further comprises a handle **60**. The handle **60** extends  
10 from, and is in fluid communication with, the nozzle **16**.

11 It will be understood that each of the elements described above, or two or  
12 more together, may also find a useful application in other types of constructions  
13 differing from the types described above.

14 While the invention has been illustrated and described as embodied in a  
15 shower head for selectively adding liquid soap to shower water, however, it is not  
16 limited to the details shown, since it will be understood that various omissions,  
17 modifications, substitutions and changes in the forms and details of the assembly  
18 illustrated and its operation can be made by those skilled in the art without departing  
19 in any way from the spirit of the present invention.

1           Without further analysis, the foregoing will so fully reveal the gist of the present  
2 invention that others can, by applying current knowledge, readily adapt it for various  
3 applications without omitting features that, from the standpoint of prior art, fairly  
4 constitute characteristics of the generic or specific aspects of this invention.